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The Clinical, Laboratory and Echocardiographic Findings of Spontaneous Echo Contrast in Patients with Atrial Fibrillation

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Objective: The risk for thromboembolic events in the setting of atrial fibrillation (AF) begins with deterioration of left atrium mechanical function that is reflected by development of spontaneous echo contrast (SEC). Although left atrium SEC has been associated with a hypercoagulable state in patients with AF, the precise underlying pathogenic mechanism behind the SEC is complex and poorly understood. The aim of the present study is to characterize the clinical, laboratory and echocardiographic findings of left atrial SEC.

Material-Methods: One hundred seventy two patients with AF in whom transesophageal echocardiography was performed were enrolled to this study. Patients were categorized according to the presence of the left atrial SEC. Group 1 was consisted of patients with AF and left atrial SEC (-), and group 2 was consisted of patients with AF and left atrial SEC (+). Basal demographic, laboratory and echocardiographic features of the patients were compared between two groups. Statistical analyses (Independent-Samples T test and Chi-Square tests) were used to evaluate the differences between two groups.

Results: The study group was consisted of 105 men (61%) and 67 women (39%), and the mean age of total patients was 64.48 ± 13.90 years. Group 1 was consisted of 95 patients

(70 (72.2%) men, mean age 61.90 ± 15.75 years) and Group 2 was consisted of 72 patients (35 (46.7%) men and mean age 67.82 ± 10.23 years). In terms of baseline demographic characteristics, older and male patients with AF were tend to have SEC in the left atrium (p value 0.05 for age, and 0.001 for male sex). When we evaluated the laboratory findings, we observed that there are statistically significant differences for GFR and MPV values between two groups. SEC (+) patients had low GFR values (64.18 ± 24.29 mg/dl vs. 71.83 ± 21.81 mg/dl, p value 0.031) and higher MPV values (8.94 ± 0.98 fL vs. 8.52 ± 1.15 fL, p value 0.012) compared with SEC (-) patients. For the echocardiographic findings, although SEC (+) patients had large left atrium size and low left ventricular ejection fraction, there is no a statistically significant difference. Furthermore, peak blood flow velocity of LAA was statistically lower in SEC (+) patients compared with SEC (-) ones (28.84 ± 10.55 cm/sn vs. 42.42 ± 15.11 cm/sn, p value <0.001).

Conclusion: We found that older age, male sex, low GFR value, higher MPV value and low blood flow velocity of LAA were in association with left atrial SEC. These mentioned patient characteristics may represent a propensity to the risk of thromboembolism in the setting of left atrial SEC, and would be helpful for the better recognition and/or managing of ongoing pathologies due to the future thromboembolic events in patients with AF. Further prospective studies are required to identify the prognostic significance these risk factors in the pathogenesis of left atrial SEC in patients with AF.

Results of the Study

	GROUP 1 (SEC NEGATIVE) (n=97)	GROUP 2 (SEC POSITIVE) (n=75)	P value
Basal demographic and clinical features			
Age, (years)	61.90 ± 15.75	67.82 ± 10.23	0.05
Male, n (%)	70 (72.2%)	35 (46.7%)	0.001
Heart rate, (bpm)	88.90 ± 20.95	91.84 ± 20.51	0.360
SBP, (mmHg)	126.55 ± 20.79	129.05 ± 18.46	0.414
DBP, (mmHg)	76.24 ± 13.11	76.04 ± 13.69	0.920
CAD, n (%)	30 (30.9%)	24 (32%)	0.881
HT, n (%)	47 (48.5%)	35 (46.7%)	0.816
HL, n (%)	20 (20.6%)	15 (20%)	0.920
DM, n (%)	27 (27.8%)	21 (28%)	0.981
Laboratory findings			
Glucose, (mg/dl)	119.92 ± 55.52	110.37 ± 28.82	0.177
GFR, (mL/min)	71.83 ± 21.81	64.18 ± 24.29	0.031
LDL-C, (mg/dl)	114.23 ± 31.77	110.11 ± 35.27	0.447
WBC, (10×10^3 /microL)	7388.75 ± 2808.06	7731.04 ± 2264.88	0.390
HB, (g/dL)	13.33 ± 1.98	13.41 ± 1.69	0.779
HCT, (%)	39.96 ± 5.62	41.08 ± 7.28	0.258
PLT, (10×10^3 /microL)	238.32 ± 77.30	247.49 ± 77.15	0.441
PCT, (%)	0.196 ± 0.06	0.217 ± 0.07	0.058
MPV, (fL)	8.52 ± 1.15	8.94 ± 0.98	0.012
PDW, (%)	16.35 ± 5.32	16.15 ± 2.85	0.764
RDW, (%)	15.16 ± 3.47	15.50 ± 3.51	0.531
Neutrophil/Lymphocyte Ratio	3.16 ± 2.53	3.41 ± 2.45	0.522
Echocardiographic findings			
LVIDD, (mm)	49.72 ± 5.96	50.73 ± 4.88	0.235
LA, (mm)	43.57 ± 7.01	45.62 ± 6.32	0.051
LVEF, (%)	56.79 ± 10.53	55.61 ± 11.12	0.480
Blood flow velocity of LAA (cm/sn)	42.42 ± 15.11	28.84 ± 10.55	< 0.001

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No Association between the Methylenelethetrahydrofolate Reductase A1298C Variants and Atrial Fibrillation with Ischemic Stroke in Turkish Population

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Background: The A1298C allele is characterized by a point mutation at position 1298 of the methylenelethetrahydrofolate reductase (MTHFR) gene causing the replacement of glutamine by alanine in the corresponding enzyme. MTHFR gene A1298C mutation is associated with moderately elevated homocysteine levels. Mutations in genes of the homocysteine metabolic pathway may confer an increased risk for ischemic stroke related to elevated plasma homocysteine levels. MTHFR polymorphism has been proposed by some studies to be also a thrombophilic risk factor for thrombosis. Atrial fibrillation (AF) is the commonest sustained cardiac arrhythmia, which confers a high risk of mortality and morbidity from stroke and thromboembolism. We aimed to investigate MTHFR A1298C mutation in patients with AF who have had a stroke than in healthy controls.

Methods: MTHFR gene A1298C mutation was analysed in 70 patients with non-valvular AF who have had a stroke and 70 healthy individuals with no documented episode of AF matched for age, race and sex. After DNA isolation, polymorphisms were analyze using Polymerase Chain Reaction-Restriction Fragment Length Polymorphism methods. 1298 AA genotype is the "normal" homozygous, 1298 AC genotype the heterozygous, and 1298 CC genotype the homozygous for the "variant".